Foresees Auto Building in the Hands of a Few Makers

Leland of the Society of Automobile Engineers Gives a Prophecy of the Future of the Motor Car Industry.

[Henry M. Leland, president of the Society of Automobile Engineers, delivered an interesting address at the recent annual meeting of the S. A. E. Part of it is given herewith.]

It is said in the good book that young men shall dream dreams and old men see visions. May I tell you of my vision in regard to the future of the automobile industry? This I will state in general terms only, because it will be less invidious if I do not interfere too particularly. In my vision I see the self-propelled vehicles increase in number and utility until they cover the face of the earth. They take a wider and more important part in the transportation of the future as regards the carrying of people as well as all manner of goods and merchandise, not superseding the locomotive and the steamboat, but carrying the mighty volume of traffic to and from these transportation giants, which we must still depend upon for the long haul, so to speak.

The other part of my vision is not so pleasant to contemplate. I see that the number of manufacturers of automobiles has about reached its maximum, and that it will constantly decrease until but a comparatively few immense plants will supply the entire world with motor driven vehicles of every type and nature.

Dreams do not always come true. But if this dream were to become real, and there is always that possibility, what would be the message to our large membership of automobile engineers and to the countless numbers of embryo automobile engineers who are now coming through the colleges? The answer is plain. Every one of the 130 or more American automobile plants has its own corps of engineers. Some need more than others.

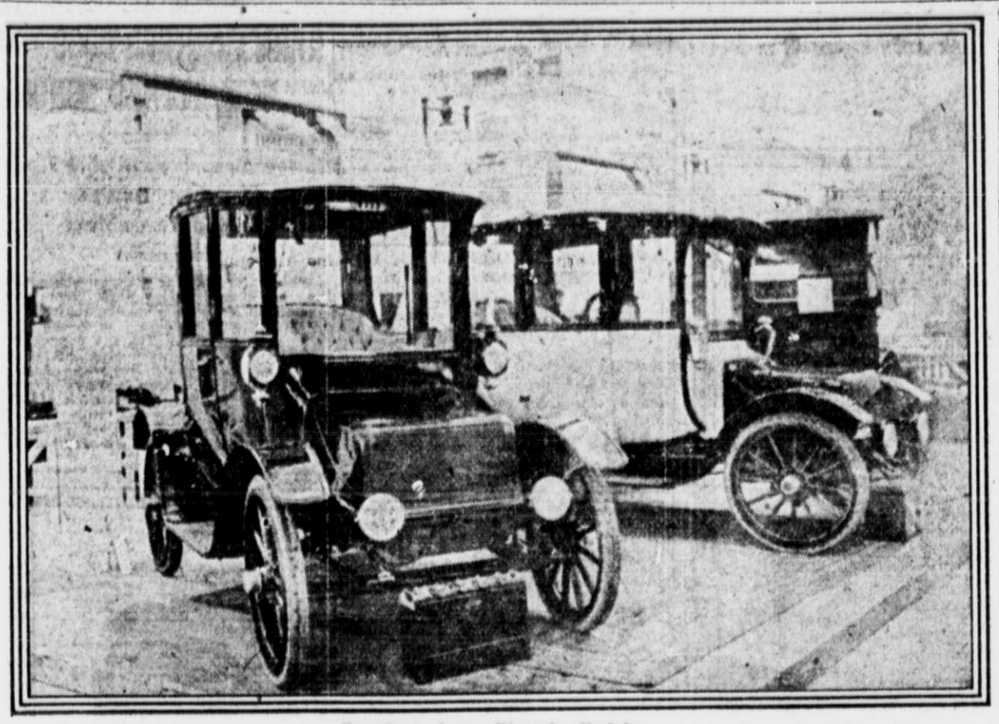
Should these plants become materially less in number there will be a substantially less number of automobile engineers required as designers. Then what will those engineers do who are displaced as one after another of these plants is diverted to some other industry? To suggest, if I may, a possible solution of this possibly vital question is my reason for injecting at this time what I hope none of you will consider merely a pessimistic outburst. I can see two great opportunities for the engineers who will be thus liberated from automobile designing should my prophecy become history.

First. The converted plants will be reequipped and effectively operated to supply the constantly growing demand for other necessities. New devices must be brought into being to keep pace with and to supply the need for all the material things which are constantly increasing and which our continuously refining civilization demands, not only for the daily wants and material needs but for the uncountable means to supply the ever increasing desire for culture, refinement and all that goes to make up that highest civilization which this country is ever reaching after. Supplying this demand of the future will mean increased enlargement of our miscellaneous industries and will call for men of your engineering skill, experience and training. And it only remains for the automobile engineer to qualify and prepare himself for this enlarged field of opportunity.

Second. Most of the automobile engineers of the future who remain in the automobile industry as a part of one of the few large plants will apply their training and ability to scientific automobile manufacturing rather than to scientific automobile designing. Here is the great opportunity of the future for the automobile engineer. May I outline my conception of the characteristics of such an automobile plant as will stand the stress of time and of the manufacturing opportunity in such a plant for the automobile engineer?

The automobile plant of the future will have the proper combination of capital and brains, correlated to the right ideals and standards. It will produce such a car in design, efficiency, quality and price as will insure a large volume of business, because the requisite conditions cannot continue permanently without plenty of capital and a large volume of business. Its management will be by one who is in hearty accord with the high ideals which must be realized in order to establish a permanent and successful business of the kind and magnitude here outlined.

There are two magic words which you have heard before and which are the most potent that can possibly be used to express the essentials for success in the manufacture of automobiles on a large, permanent and successful basis. I hasten to take you into my confidence and tell you that these two words are "knowing how." There is no substitute for these two words, nothing else can take their place.



Rauch & Lang Electric Models.

DESIGNER MUST BUILD TO ALL REQUIREMENTS

Warner of Oakland Speaks of Need of Considering Possible Buyers.

By FRED W. WARNER, Oakland Motor Car Company.

Designers of motor cars, while they have received training in the laying out of the mechanical units of the chassis have by no means ended their training there. A motor car designer in order to be highly proficient must make a deep study of the conditions under which the car that is in the making is to operate; he must place himself in the position of the city business man, the farmer, the speed bug, the reckless driver, the technical and untechnical owner.

Besides being able to build in conformity with the wants of these men in the matter of chassis design and construction he must cooperate with the body designer not only as to style but as to materials. A busy city merchant may not drive even for a short period during a slight rain, whereas a farmer, hardened to outdoor life, would not hesitate for a moment to venture out with the car open to the action of the elements.

The designer then must not build to the business man alone but must consider the farmer, whose car may never have the top raised and the upholstery often exposed to rain and snow. He must consider the farmer again when it comes to speed on muddy, slippery, rough country roads and not keep in mind the city man alone, who must of necessity use the car for the greater part of its life in and around the nicely paved streets of the city.

The designer of the Oakland 37 has paid as much attention to the needs of the farmer, the speed bug, &c., as he has to the city owner. This car has been constructed to be used on country roads in all kinds of weather at all speeds.

Another point of detail which ordinarily is overlooked is the quality of the upholstery. Oakland seats and cusdions are made of real leather whose finish is designed to withstand the action of rain. An Oakland farmer owner soon learns that he can drive his car through a rainstorm without having the upholstery become soggy and watersoaked and without having the finish of the car look as if the vehicle were twelve years old.

There are dozens of details of the Oakland which have been worked out with all the purchasers in mind and not merely one type of owner. Country folks have greater use for the wide open throttle than the city owner who gets to the country roads only occasionally. Thirty-five and forty miles an hour quite frequently is the desired speed. Yet a car to attain that speed and keep it for any lenght of time on a muddy, slippery, rut worn country road must be balanced in every detail.

Women Interested in Owen Car.

That thet new Owen magnetic car made a successful debut at the Palace show is evidenced by the fact that every mail delivery at the Owen show rooms at 735 Seventh avenue brings inquiries from points between Maine and Florida extending from coast to coast. Many are from women who are interested in the magnetic control because it eliminates the clutch, clutch pedal, gear set and gear shifting levers.

Goodyear Takes Over Motz Lines.

The Goodyear Tire and Rubber Company has taken over the sale of the products of the Motz Tire and Rubber Company, cushion tires for electrics, cushion tires for gasolene and electric commercial cars and side flange truck tires.

The transfer of sales will formally take place February 1.

A NEW SIZE WINTON AT $2,285.

The Winton company at the show had the well known $3,250 Winton six and an entirely new model, known as the new size Winton six, selling at $2,285.

"In this new car," says General Manager Churchill of the Winton company, "we are giving the motor world a pleasant surprise. For years car buyers have reported to us their inability to find the very top grade of quality in any but the largest and costliest cars. The man who wanted a car of happy medium size was forced to content himself with medium quality. This, we figured, was a condition that should not be allowed to continue. We set about to see what we could do, and this new size Winton six is the result."

In appearance the smaller Winton six is almost an exact counterpart of the $3,250 Winton six, which is exhibited side by side with the new model. The body lines are repeated. Divided front seats are provided if the buyer desires. The wheel base is 128 inches, eight inches shorter than the larger car. The new motor has a 3⅝ inch bore and a 5¼ inch stroke, as compared to the 4½ inch bore and 5½ inch stroke of the larger model.

The motor is of the Winton six type, with L head, big valves and balanced moving parts. Motor, clutch and transmission form a unit power plant, completely housed. The clutch has five pairs of dry plates. The transmission has four forward speeds and reverse. A universal joint is placed at each end of the drive shaft and the rear driving gears are spiral bevels. The rear axle is of the full floating type. All springs are of chrome vanadium steel, with Dann oil cushionized inserts. Springs are semi-elliptical in front and three-quarter elliptical behind, the rear springs being underslung. Wood or wire wheels are provided at the purchaser's option.

Electric features include Bijur starting and lighting system with separate motor and generator and storage battery; head, signal, tail and dash lights, and Bosch ignition. The seamless gasolene tank with gauge, suspended at the rear of the frame, has a capacity of 21½ gallons. Air pressure carries the fuel to an auxiliary tank under the cowl, from which tank the carbureter is fed by gravity. Lubrication is by means of gear pump and water circulation is secured by gear driven centrifugal pump. A motor driven air pump supplies pressure for inflating the 36 by 4½ inch tires. Non-skid rear tires are regular equipment, as are Firestone demountable rims also. Additional equipment includes Warner speedometer, clock, Klaxon horn, one man top, Jiffy curtains and plate glass wind shield, the latter having rain vision and ventilating adjustments.

Since the most striking difference between cars of high grade and cars of low grade is the color treatment buyers of the new size Winton six will enjoy the same advantage that is extended to buyers of the larger model; that is, each purchaser may have his car finished in his own color scheme and thus express his own individual taste. Also the Winton service system will apply to both models equally.

DETACHABLE BODIES FOR OVERLANDS

C. T. Silver Has Introduced New Closed Type for Touring or Runabout.

Outside of the beautiful special closed bodies C. T. Silver has had built for the Overland, Peerless and Willys-Knight chassis, he has just introduced a new type of detachable closed body at a moderate price which can be fitted to any Overland touring car or runabout.

All that is necessary to fit the body to an Overland car is to remove the top and windshield and the attachment of a few bolts and transform the car into an ideal closed vehicle of the sedan type with an up to date sloping roof seen on the more expensive cars.

The body of the car is solid, with an oval plate glass window in the rear, while the interior is finished in gray Bedford cloth, which can be used as slip covers in the spring. Doors and pillar side doors with duplex windows on the side doors complete the transformation of the car.

The body with attachments complete sells for $325 for the $1,075 car, for $300 on the $850 car and for $225 on the runabout type.

A special foot rest heater with hot air supplied from the exhaust also comes with the body for $25 extra.

MOTOR CLUBS AS GOOD ROADS FORCES

New Secretary of State Tells What Autoists May Accomplish.

INFLUENCES THAT DO WORK

By FRANCIS M. HUGO, Secretary of State.

The motorist is usually pointed out as the pioneer in highway improvement because it was his needs which created the demand for good roads. Although improved highways are desirable and profitable to all classes of vehicular traffic, they are primarily essential to the autoist because the mechanically driven vehicle requires better roads to travel upon than the horse drawn vehicle, which for centuries has been hauled over all kinds of highways. Thus it is that the motorist was first to become an economic force in shaping the demands for good roads.

But how may the motorist best act to accomplish this end? At the outset he must realize that as organization is the foundation principle of that strength which achieves result, so in order that the best results may be secured the motorist should become a member of some local automobile club. This step is the first and most important thing he can do for the advancement of the good roads movement.

In joining these local organizations the motorist must understand that in this way his social, political and financial influence with the aid of active club officials will greatly strengthen the forces for achieving the best results. As a rule most of the motor car owners in a community are men of character and means, often the leaders in business, wealth and social prominence. It is these factors united which become the strongest force in supporting movements for the general good.

As local clubs organize and thus become important leaders in the movement for the improvement of good roads locally, just so their influence will broaden through State and national organization and thus become State and nation wide in application and influence. In this way the motorists develop into a dynamic force in the spreading of the good roads gospel, a movement which eventually is bound to result in cooperation with the national Government in the taking up of the problem of highway improvement throughout the country.

Fuel Fed by Vacuum.

The gasolene tank of the new White car is carried in the rear of the body and a simple vacuum system is employed to draw the fluid to the carbureter without the use of pressure pumps or other appurtenances.

White Uses Silvertown Tires.

Silvertown cord tires are standard equipment on the new series of White cars.

STUDEBAKER'S NEW PLACE IS COMPLETE

"Show" Installed in Fine Store at Broadway and 56th Street.

ADAPTED TO BIG TRADE

The close of the automobile show by no means lessens the activities of the officials and salesmen of the Studebaker Corporation, who were so busy in show week. They merely move to their new quarters at Fifty-sixth street and Broadway, and there begin a show of their own, a continuation of that which aroused so much interest in Studebaker 1915 models at the Grand Central Palace.

Although the new Studebaker building on "Gasolene Alley" was occupied last November, it was not until last week that the alterations were completed which give the company the headquarters for which it had planned. The rapid increase in the business handled through the New York branch made it necessary to move to this larger building even while it was still in the hands of the contractor. But now the inconvenience of the days when decorators and salesmen tried to occupy the same space is a thing of the past and the Studebaker show is on.

"These last few months have been rather trying on us," said F. R. Bump, manager in charge of the branch, "but now that we are so comfortably housed we are willing to forget the upturned condition we were in. The one gratifying thought is that we were afflicted with growing pains, and that only the necessity of keeping up with the demand for Studebaker cars forced us to take larger space before we had anticipated the need of it."

The new building is a five story structure devoted entirely to Studebaker cars and service. Occupying a corner, it has an abundance of light. The showroom is so large that it affords a dignified setting for all the 1915 models. There is no crowding and the visitor does not lose the feeling that he is at an exhibition which puts as much stress upon its artistic features as it does upon the commercial.

Several floors are devoted to the storage of cars ready for delivery. Just as fast as a car is taken from the floor of the showroom and turned over to a customer another is brought down to take its place. This is an expensive method of doing business, because it ties up a large sum of money in stock that is not ready to move, but it is in line with the Studebaker policy of having an automobile ready for the road the minute a customer wants it.

Now that the building has been turned over by the contractor, one of the happiest men in the organization is W. S. Jewell, the retail branch manager directly in charge of Studebaker service.

"I never saw a service station as conveniently arranged as this one." Mr. Jewell insists with enthusiasm. "Now that the stock has been arranged in proper bins and on classified shelves I can go in the dark and pick out any bit of Studebaker equipment a man could ever need. But there is one thing that we do not carry on our service shelves, but every man who coöperates with my department has an unlimited supply of it always on hand, no matter where you meet him—Studebaker service advice for the owner who needs it.

"The great majority of automobile owners are not trained mechanics and do not want to be. It is natural for them to turn to the manufacturers of their cars. We have developed a large department in which they may confide when seeking the best adjustment of their cars. That is where Studebaker service makes its big hit. It has been organized to talk in words of one syllable and to explain everything so that the owner of a Studebaker car never feels that he is being 'talked down to.' All the mechanics in our employ have been trained in the Studebaker plant. This makes the New York branch practically a branch factory as well as far as personnel is concerned."

MAKING AN AUTOMOBILE TIRE

About the first process rubber goes through on the way to become a tire or tube is mastication. After the crude para is washed it is broken up into lumps and tossed into the crackers. These are machines with heavy rollers which take the rubber in between them and "chew" it. Entering the masticating room of a factory such as the Ajax-Grieb at Trenton, the first impression is that there is a brush fire burning or else there is a den of snakes at hand.

The rubber snaps and crackles like burning branches and then hisses shudderingly. The stuff is kept at until it comes up in regular sheets, very thin and looking like a sort of cake dusted with crumbs. Then after a thorough drying in vacuum chambers it is ready to be put in with the chemicals and other things that make up the compound.

Into the final compound of rubber, that is after crude material has been thoroughly washed and dried, many chemicals enter in order to produce the required results. In the compounding of rubber the entire secret of rubber manufacturing business lies and accounts for the difference between good rubber and bad rubber.

Sulphur is required in order to effect vulcanization and it is in the use of these compounds that one manufacturing concern may overtop the other, both using the same grade of crude material. In the mixing room of the Ajax each one of these ingredients is weighed to a fractional part of an ounce. Then they go into the workrooms, where the entire mass is worked upon rollers until it becomes a plastic whole.

When the compound of rubber for tires and tubes has been worked up to the proper point of mixture and plasticity it is ready to be removed from the masticating machines and it is then transferred to another type of machine with heavy rollers. According as the distance apart of these rollers is the thickness of the sheet of rubber which runs through.

The material is worked in so that it runs around the lower roller continuously, and knives set at certain distances apart resting on this roller mark off strips of rubber of desired width. These run off onto long linen rolls, thus providing a convenient form of transporting from one floor to another the rubber which is used in building up the body of the tire as well as in making tubes.

When the linen rolls are taken aloft in the Ajax factory they are run on long tables and the strips of plastic rubber are sliced at certain lengths to be used as plies for the tires.

Rubberizing the linen which goes into tires is done by means of a frictioning machine, which grinds the plastic rubber into the fabric at high pressure and impregnates it thoroughly with the gum. The fabric for the breaker strips and canvas plies is first held at great heat in order to be thoroughly dry. Then it is ready to be wound into the calendars, which "friction" the rubber into the fabric.

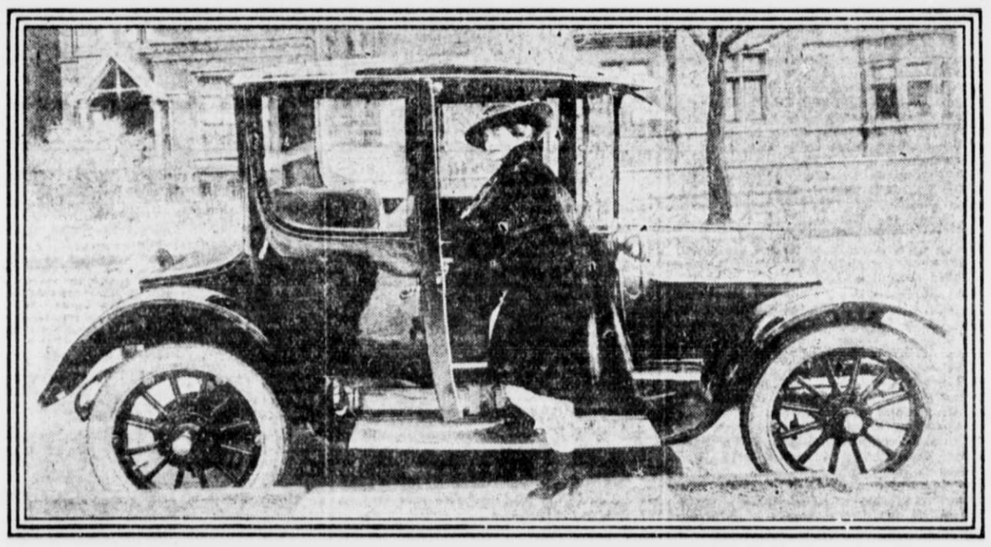
There are three huge rolls on this frictioning machine, the middle revolving at high speed and the lower at low speed. By the difference in the speed of the rolls the rubber is thoroughly worked into the cloth, which winds on one roll as the rubber revolves on the drum opposite.

Casings for automobile tires are built up around moulds formed like a wheel. Strips of the heavily rubberized canvas of varying lengths, according to the circumference of the tire to be built form the first layer in the building up of a shoe. These have been sewed so that they form a continuous piece and then are worked around the mould. Around this inner layer go the various plies of canvas until the breaker strip is inserted. Plies of rubber are added for the tread until the whole is built up in the form that it is designed to take.

This tire, mould and all, is carried away to be weighed, because it must come up to a certain standard. This process so briefly described is one of the most important of all in tire building. The Ajax company employs a number of extremely expert men in the making of tire casings.

In the curing room to which the tire and mould go for the final step in the process there is a part of the work in the Ajax-Grieb factory which is its own special device. It applies to the way in which the casing is held in the shell before it goes into the vulcanizer.

Those tires which are designed to have a wrapped tread go under a spiral machine, which winds a narrow strip of canvas all around the tread. Then the casings are placed in the shells and put into the curing ovens, where they remain until the process is completed. In the mould the raised letters of the Ajax trade mark and the figures of the Ajax sizes are embossed on them. They are then about ready to be stored to await packing.



Coupe mounted on Overland 80 chassis.

PACKARD EXPERIMENTAL WORK

Much Money and Time Spent in This Discovery Work.

Few purchasers of high grade motor cars realize the vast expenditure of cash and energy that precedes the manufacture of a new model. It is stated by the Packard company that it experimented for years before bringing out its first six, and even in its present advanced stage of development spends from $300,000 to $500,000 a year in engineering forework.

The experimental work ranges from rough riding over mountain trails to 300 hour tests on the dynamometer. This is the price paid for keeping abreast of the times to satisfy the demands of a hypercritical public. Probably four-fifths of the energy is put forth in finding out what not to do.

The roughest and wildest trails of the Far West are selected for testing sample cars, embodying various experimental developments. These cars are hammered through the hardest road work that human endurance and skill can execute. Drivers like S. D. Walden, vice-president, and J. G. Vincent, chief engineer of the Packard company, hurl experimental cars through thousands of miles of desert and mountain roads with the knowledge that this is the only treatment that will establish beyond any possible doubt or peradventure that there are no structural defects and no weaknesses of design in the cars under observation. Walden, who recently returned from a test trip during which an experimental car was taken from Detroit to Los Angeles and back, drove 1,000 miles in three days, from Albuquerque to Kansas City, over some of the worst going in the Southwest.

FAST RUN BY MAXWELL.

Carlson Drives Speedily Over 58 Miles of Road Course.

Word received from Billy Carlson, the Maxwell racing driver, from Colton, Cal., gives information that a Maxwell has broken all records for fast driving over the course between Los Angeles and Riverside, a distance of fifty-eight miles. The Maxwell covered this distance in 56 minutes and 26 seconds, over a combination of both good and bad roads, crossing the railroad many times and slowing up through twelve towns on the way.

The Maxwell made an average of 61 miles an hour for the trip and made the distance of 58 miles 53 minutes and 44 seconds faster than the fast coast trains travel it. All automobile records for the course from Los Angeles to Riverside were broken.

Paul Hale Bruske, who was a long time with the Studebaker Corporation, has become contest manager for the Maxwell, and last reported was on his way to San Diego for the races there.

CABRIOLET IS COMING TYPE.

Will Supplant Old Style Roadsters Surely, Says Emise.

That the cabriolet type of roadster will eventually supplant a majority of the old style roadsters within a few years is the opinion of C. A. Emise, vice-president and sales manager of the Chandler Motor Car Company. Emise cites the superior advantages and comfort of the recently adopted European type of body as sufficient reason for his claim.

"In the past ten years, no body style has appeared on the market which has won such instant popular approval as the three passenger cabriolet or all year round car," says Emise. "Each season finds a larger proportion of motor car owners who keep their cars running throughout the winter months. Protection against the sleet and cold is of course necessary to the motorist who places any value on bodily comfort.

"In former years an owner of a two passenger roadster had the choice of substituting an expensive and ofttimes heavy coupe body or getting through the winter with the protection afforded by adjustable curtains. To-day at a very slight increase in cost he can purchase a completely equipped car that is really two automobiles in one. The cabriolet has all the advantages and snappy appearance of the roadster with the very commendable feature of becoming a fully enclosed car at the will of the driver.

"The leather top may be folded down in such a way as to give no indication of the car's convertible nature. With the top up the side windows can be left open and the roadster appearance is still maintained. The windows fold into the doors and in order to place them in position it is only necessary to open the doors, fold the windows upward, and the car becomes the fully enclosed cabriolet.

"Outside of the annoyance caused by the transfer of open and closed bodies and the loss of the car's use for a week or so on the ordinary type of body, the cabriolet because of its light weight contributes largely to the long life of the tires. From my experiences of the past season, I confidently believe that the cabriolet sales of the next few years will far outstrip the sale of roadsters to buyers looking for real utility and convenience."

MAXWELL SHOWS GAINS.

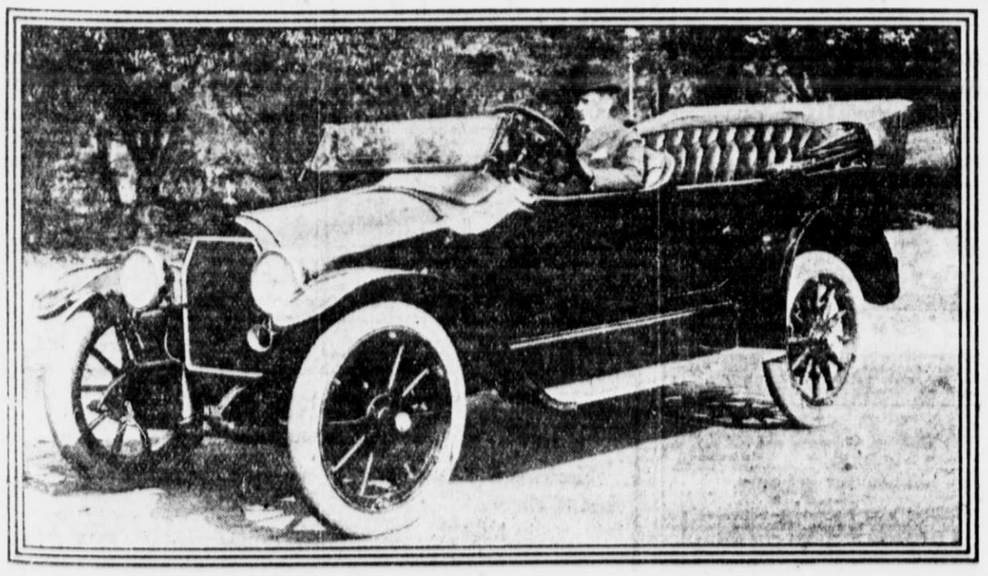
Production and Business Increase Steadily Since August.

An interesting report on business from the Maxwell Motor Company shows that the company made big gains over last year, and also that the business and production has gained every month since the 1st of August.

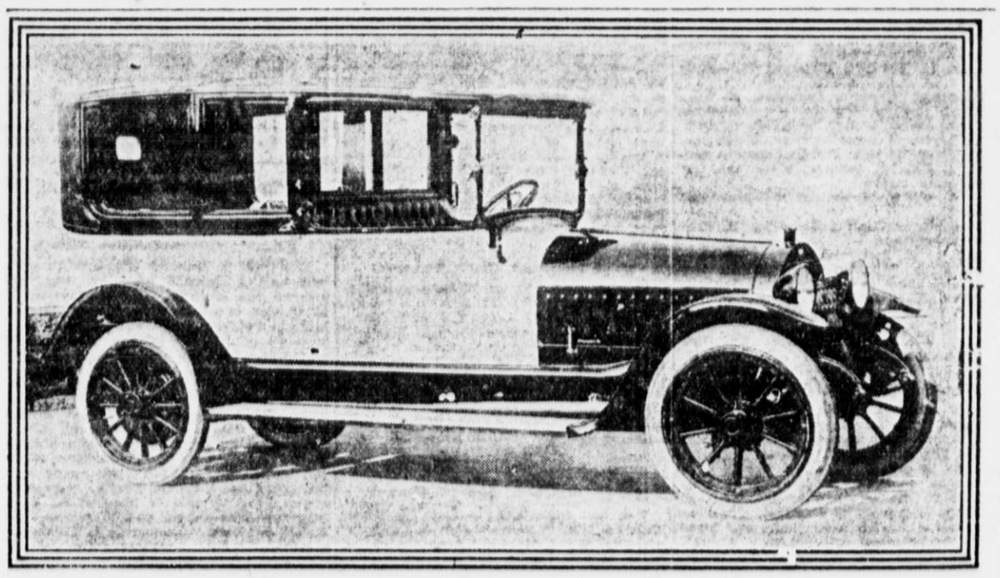
The Maxwell Motor Company employed an average of 4,250 men daily for the months of August, September and October, 1913, with an average monthly payroll of $296,956.24. The recapitulation statement for the same months of this year shows a daily average of 5,818 men, with a monthly payroll of $427,809.52, or an increased payroll of $130,853.28 per month.

The thirty days of November of this year make an interesting comparison, and shows that business conditions are actually better with the Maxwell Motor Company since the war was declared in August. They employed 5,727 men daily during November of this year, as against 5,602 men in August of this year and 3,894 men in November of last year.

"When the general business conditions of the country during August and September are considered, this showing is indeed remarkable," said Walter E. Flanders, president of the Maxwell Motor Company. "Maxwell production has increased every month since August 1, and present plans of the company are for a still greater increase."



Stearns Light Four, W. A. Lesser at the wheel.



Marmon "41" With Moore & Munger Limousine.